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Thai Agriculture: From Engine of Growth to Sunset Status*

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THAI AGRICULTURE ON THE EVE OF THE INDUSTRIAL BOOM

Since 1980, the Thai economy has been moving toward a new growth path. Before that date, agriculture was the engine of growth. Thailand had surplus land which it brought into cultivation. This enabled farmers to produce new commodities in new lands and increase exports in large quantities, thus demonstrating a clear comparative advantage in this sector. This comparative advantage is emphasized when one takes into account the policy bias *against* agriculture: exports of rice and rubber, the two top earners, were heavily taxed; export controls were imposed on maize and were on the point of being introduced into cassava. Of all the major export commodities, only sugar was subsidized. Despite these adverse measures from the government, production and exports of most agricultural commodities continued to grow, in some cases rapidly. For instance, between 1968 and 1980, exports of cassava doubled every four years.

In retrospect, the 1970s could be considered an Indian summer of agricultural expansion. More forest concessions were granted in the early 1970s than in any other period, allowing forested lands to be rapidly cleared, and occupied by farmers (à¨ÔÁÈÑ¡´Ôì 2534, ÍÒ¹Ñ¹·ìáÅÐÁÔè§ÊÃÃ¾ì 2538). The great commodity boom of the mid-1970s speeded up this process. But by 1980, the main thrust to agricultural expansion, namely, the plentiful supply of land, was beginning to fizzle out, as most of the available land had been cleared and occupied. The great commodity boom of the 1970s was followed by the great commodity bust of the 1980s.

The early 1980s was an extremely painful period for the Thai economy as a whole. There was the structural problem created by the declining comparative advantage of Thai agriculture. To this can be added the macroeconomic adjustment to recover from the fiscal imprudence of the late 1970s, induced by the reluctance of the government to adjust to higher petroleum prices.

It is to the credit of the various economic actors in the Thai economy that the needed painful adjustments were made, so that after 1986, Thailand was launched into a decade of massive industrial boom. Among the actors involved in this adjustment process, the literature has focused on businessmen and technocrats. This paper focuses on the processes of adjustment undertaken by the men and women, who farm the land and who make up a clear majority of the Thai economic actors.

THE THAI AGRICULTURAL MALAISE IN THE 1980s AND THE 1990s: SOME HYPOTHESES

In the eyes of many, agriculture has been in serious trouble from the 1980s onwards. Various observations and pieces of data can be deployed as evidence; the increase in poverty and the massive out-migration from rural areas are two that come readily to mind. A number of hypotheses can be proposed for the malaise. These hypotheses lead to different suppositions about the future of agriculture, and thus, to different suppositions about the types of policies needed to rescue agriculture from its current malaise.

"Natural" Decline of Agriculture: With economic growth the share of agriculture will naturally decline. This is probably the best documented fact in economics. So it is with Thai agriculture. In this sense, there is nothing new in the problem of Thai agriculture in the 1980s and the 1990s. Agriculture as a share of GDP will decline, as it has declined in all the other countries of the world that has preceded Thailand in development. Further, people will migrate out of agricultural pursuits, again imitating development in other countries.

While the march of history has the ring of inevitability and finality, this line of reasoning is analytically thin. What has been established in economics is a *correlation* between economic growth and the decline of agriculture. The precise mechanism or the *causation* that links the two sets of variables is by no means as well agreed. Because of this lack of a clear specification, the policy prescription that emanates from this hypothesis is necessarily fatalistic. At the other

extreme, the radical prescription is proposed of stopping growth for agriculture to survive.

The End of the Land Frontier: The story as told in the introduction is that Thai agricultural growth in the 1960s and the 1970s is explained largely by the existence of a large land surplus, which disappeared in the 1980s. The consequent depression in growth was worsened by the turn in the terms of trade against agriculture. Clearly this is a point of view I subscribe to, and have argued at length elsewhere (Ammar 1995).

However, there is one problem with this hypothesis. If the end of the land frontier is the cause of the malaise, then one would expect a slowing down in the rate of agricultural growth when it happens. We know that the end of the land frontier can be dated to around 1980, for then the amount of land per agricultural worker began to decline after rising during the previous two decades (Figure 1). We should therefore expect a sharp deterioration in the rate of growth of agricultural production. But this is not what happened. Value added in agriculture (crops and livestock) grew at a remarkable 4.0 percent during the 1980s and the slowdown (to 2.4 percent) began only in 1989. We need to supplement this hypothesis with another to complete the picture.

The Dutch Disease Hypothesis: It is well known that when there is a massive boom in a large tradable sector, then the other tradable sectors would bear the brunt of adjustments in the economy. This happens because resources are withdrawn from this other sector, not only to feed the booming tradable sector, but also to feed the induced growth of the nontradable sectors as well. Furthermore, the earnings brought in by the booming sector will induce a rise in the real exchange rate, which in turn will impose an additional burden on the nonbooming tradable sectors as well.[1] From the point of view of the individual producers, this phenomenon of the Dutch disease (as it is known in economic literature) expresses itself in the form of a cost-price squeeze. The costs go up as primary factors of production become more expensive, and the (relative) prices come down as the real exchange rate appreciates. This characterization explains the problem faced by agriculture in some fast-growing Asian economies. Thus the problem that the Japanese rice sector faced in its period of rapid growth in the 1960s and the extremely high protection that it has to provide to the sector arises out of the rapid real appreciation of the yen (Ammar and Haykin 1983).

The travails of the Thai agricultural sector as a consequence of the industrial boom reflect fully the Dutch disease. In addition, agriculture faces another problem, namely the severe worldwide agricultural depression of the 1980s, which further shifted the terms of trade against agriculture. Meanwhile, as the industrial boom took off, wages for agriculture went up considerably.

In proposing the Dutch disease hypothesis, I am making another assumption. I am proposing that the main engine driving Thai economic growth, i.e., the export-oriented industrial boom is an exogenous event to which agriculture has had to adjust. It is beyond the scope of this paper to explain the emergence of the industrial boom in the second half of the 1980s. Suffice to note that factors specific to the industrial sector came together to propel that boom forward (policy changes in the early 1980s, particularly the exchange rate adjustments; the technological readiness of the Thai industrial sector—at least as far as some of the low-tech part of that sector is concerned, as well as the marketing skill of the Thai private sector).

Did the agricultural depression of the early 1980s make available a large pool of cheap labor that helped to ignite the industrial boom? The evidence on this is inconclusive. For this effect to work, it must be shown that real wages declined during the 1980s compared to the 1970s, otherwise the question could be raised as to why the industrial boom did not take place earlier. Unfortunately the only wage data for Thailand starts from the very end of the 1970s onwards, but the wage story in the 1980s is an interesting one, to which we shall return below.

The one hypothesis which we shall reject out of hand is that the reason for the agricultural malaise of the 1980s was that it was both technologically backward and static. That the technology is static is certainly false. Total factor productivity for agriculture has been growing at about the same rate as that in industry and services, and by some calculations is even in excess of that in industry (Pranee and Chalongphob 1996).

That it is technologically "backward" is a debatable point. Backwardness is a relative concept, so the question arises: backward to what? If it is said to be backward relative to industry, then the question of commensurability arises. The current practice of using value-added per capita in the two sectors as proxies for productivity is wrong on two counts:

- They are a measure of average product and not marginal product;
- The prices used to value the products of the two sectors are distorted by policies that are clearly biased in favor of industry and against agriculture.

Thai agriculture is sometimes said to be backward relative to other countries, and proponents usually cite the generally

lower yield figures in Thailand. This procedure is again wrong, because it takes a look at the productivity of land only. That Thailand still remains an agricultural exporter throughout the 1980s and retains its dominant share in many commodities despite the lack of protection (in the early half of the 1980s, agriculture was in fact taxed) indicates at the very least that Thailand has *comparative* advantage in agriculture. If Thai agriculture is indeed backward to other countries, then it is indeed *relatively* less backward than, say, industry. The question then needs to be asked: how is it that the Thai industrial sector enjoyed an enormous boom in the 1980s.

There is one sense in which it can be said that agriculture is disadvantaged technologically relative to industry. Industrial technology is in a sense more "footloose" than agricultural technology. Technological advances in industry worldwide can be readily imported into Thailand—the main domestic ingredient needed for its adoption being the human capital required to absorb the technology. In agriculture on the other hand, much adaptive work to make, say a new variety of rice, adoptable in Thailand's physical as well as economic environment is much more complicated. Thai farmers are practicing their agriculture quite differently from the way their fathers and grandfathers did, but not radically so. Thus it is possible for even the older generation to adopt the new technology or new crops. But Thai industrial workers are producing completely different products and doing them in a totally different way from what the very limited number of their forefathers were doing.

To deny that backward or static technology is responsible for the agricultural malaise of the 1980s is not to deny the importance of technology and policy measures to enhance Thai agricultural technology. Indeed the main conclusion of the paper is that this is an area in which the government can most profitably invest in for the future.

The various hypotheses considered in this paper see the problem of agriculture as a sectorwide phenomenon, partly created by the end of the land frontier, partly by the fall in all agricultural prices (particularly in the early and mid 1980s), and partly by the industrial boom. This is however not the way the government has chosen to tackle the problem. I shall return to this issue a little further below.

THE IMPACT OF THE AGRICULTURAL MALAISE ON THE RURAL ECONOMY

Impact on Cropping Patterns: Price changes that came in exogenously, as well as arising out of developments within the country, have led to changes in cropping patterns in the economy. I have subdivided the various crops grown in Thailand into three categories: exportables, import-competing and nontraded. Their growth rates are shown in Table 1 below.

The Dutch disease hypothesis outlined above would lead one to predict that the growth of the tradable crops, both exportables and import-competing, would be less than for the nontradable subsector. Bearing in mind that of the two traded subsectors, the exportables far outweigh the import-competing crops in importance,—the former is about ten times as large as the latter—Table 1 bears out the conclusion of that hypothesis. In fact the anomaly of the import-competing group expanding rapidly is explained by the growth in the protection of some important crops within that category, for example, the oil crops.

Within the nontraded sector, the bulk of the growth has been in the fruit subsector, which grew at 9.9 percent per annum during the 1980s. This reflects primarily the growth in domestic demand during the 1980s and even more so during the 1990s.

Impact on the Labor Markets: Probably the most important change impinging on Thai agriculture is through the labor markets. A major change that strikes an observer of the Thai rural scene is that currently Thai agriculture depends relatively more on hired labor than on family labor. From conversations with farmers, it seems that the use of family labor has all but disappeared. Although obvious enough to an observer, it is hard to document this observation. There is no direct observation available on the use of hired versus family labor. The best evidence available is the figures for the share of expenses on hired labor (both cash and food provided during the operations) in total cash farm expenditures from data collected by the Office of Agricultural Economics. Countrywide this figure has increased from 33.6 percent in 1978/79 to 57.4 percent in 1991/92, this during a period when use of cash inputs of various kinds, such as fertilizers and pesticides have grown by leaps and bounds (Office of Agricultural Economics 1980/81 and 1992/93). Looking at the matter from another side, farm families have been expanding their share of income from wage employment (sometimes by working in other farms) at the expense of their own farm income.

Admittedly, part of the increase in the share of hired labor in total farm expenses is due to the increase in wage rates. Recent calculation of a wage index carried out at TDRI indicates interesting changes in the real wage rate

(¹Ô¾¹¸ìáÅÐÊØÃªÑÂ 2539). Measured against the consumer price index, real wages remained constant in the early

1980s, but began to rise steadily in 1989, as the overall labor market began to tighten (Figure 2). Measured against agricultural prices (the index used to measure these is the agricultural value-added deflator from the national account statistics) however, the picture is quite different. Owing to the fall in agricultural prices in the first half of the 1980s, wages, in terms of agricultural prices, went up sharply by almost 50 percent between 1980 and 1985, and then fell again as agricultural prices recovered.

Recalling that the demand for labor within agriculture varies inversely with wages deflated by the prices of agricultural products, the steep rise in wages in the early 1980s must have had an impact on the use of labor in the agricultural sector. The exodus of labor out of agriculture began in the 1980s as documented in Ammar (1985:169). In contrast to the 1970s, when there was actually an increase in the *share* of labor in agriculture during the wet season, in the 1980s, the normal trend of declining share of agriculture was resumed and a small beginning was discerned in the expected decline in the absolute number of people working in agriculture, in that the number of women working in agriculture during the wet season had already begun to decline. TDRI projections expect the decline in the total working in agriculture in both seasons to begin around now (Mid-1990s).

Obviously, these changes in the agricultural labor markets cannot but have an impact on the way farming is done. Field observations indicate that farmers are increasingly separating themselves into two categories. The first category includes those who I would call casual farmers, usually older, using traditional methods, not particularly innovative, not because they are backward or ignorant, but more because their income and interests lie elsewhere than in farming, or else they are too old to introduce large changes in their patterns of living. The basic unprofitability of this kind of farming is normally made up by remittances from their children who are now working more and more year-round in factories and in the service sectors. I expect this category of farmers to dwindle into insignificance within a generation.

The second category, small in number at present, but which appears to be increasing, consists of farmers who are becoming more professional, and who are acquiring new kinds of farming skills and technology. New skills are required to cope with changing output markets, but more importantly, to cope with the shortage and high cost of labor. As the first category of farmers retire from the scene, and as there are fewer numbers of the second category to take up the legacy of farming, the latter will retain the more fertile or better watered part of the first group's land, and it will be they who will determine the future of Thai agriculture. Whether Thai agriculture will remain competitive in the world markets, or even in domestic markets will depend on the resourcefulness of these farmers.

Impact on Poverty: Unfortunately agriculture in Thailand has always been associated with poverty. Hence the ups and downs of agriculture have had a major impact on the level of poverty in the country. Throughout the 1960s and the 1970s, the strong growth in agricultural production has been largely responsible for the continuous decline in the level of poverty in the countryside during those two decades. The malaise of the 1980s, particularly the severe decline in agricultural prices in the mid-1980s was responsible for the temporary reversal of that trend (Figure 3).

Another observation that can be made from the extant poverty data is that the poor are increasingly concentrated in rural areas. The incidence of urban (i.e., municipal) poverty, always much lower than rural poverty, has come down from 7.5 percent in 1980/81 to only 2.8 percent in 1992/93. In the long term perspective, it is easy to envisage that the phenomenon of chronic and severe poverty will be exclusively in the rural areas of the country.

POLICY RESPONSE

Thai governments have tackled the agricultural malaise in different stages. But throughout they have diagnosed the problem as due to the lack of competitiveness of Thai agriculture. Internationally, as the world markets for most agricultural markets were (and still are) depressed by massive subsidies and protectionism, mostly from developed countries (but including some East Asian countries as well), Thai governments have taken a very active role in the Uruguay round of trade negotiations. During the Round, they put a considerable amount of very scarce trade personnel on the negotiations in general but focusing on agriculture in particular.

Domestically, the policies have increased in sophistication, if not in effectiveness. The first response to the fall in world prices, particularly in the early to mid-1980s, was to try and "support" domestic prices, with public purchases at above market price. These were generally futile exercises. The purchases were too small to exercise any influence on prices. Where they did, the influence was quite short-term, as the quantities purchased were soon released back into the market. These interventions, which were never put into a coherent well-thought out program, eventually became discredited as vehicles for patronage and corruption.

The next steps were somewhat more complex. The agricultural problem was defined as one of "oversupply" of some commodities and, implicitly, that there were profitable opportunities in other areas. The task the government set itself

was in two parts. The first, a radical proposal, was an institutional restructuring of the agricultural system, so that the volatile market mechanism would be replaced by a mechanism to forecast demand for various commodities, and then manage the supply to match with the forecasted demand.

There are two intellectual origins for this planning approach. The first is the observation that many countries have introduced marketing boards, and in many East Asian economies, extremely powerful cooperatives perform the same function as marketing boards. It was felt that the introduction of an institutional mechanism, called the National Agricultural Council, would allow Thailand to follow what was felt to be successful examples.

The second intellectual origin for the planning mechanism is the practice of contract farming, whereby an agri-business firm would contract with farmers to produce a commodity, whose purchase and sometimes the price the firm would guarantee. There were some spectacularly successful examples of this practice, notably in poultry, but there were also many failures. Impressed more by the successes than the failures, the government initiated in 1987 a Four-Pronged Programme to promote a cooperative effort between the agribusiness and the farming sectors (The four prongs involved are the government, financial institutions, agribusinesses and farmers).

It is not difficult to demonstrate the futility of this planning approach (TDRI 1995) nor to adduce reasons for it (Ammar 1992). That various Thai governments had to resort to this approach for agriculture (of all sectors) in the late 1980s and early 1990s (of all periods in history) showed the helplessness if not the desperation with which they tackled the problems of agriculture.

In the end, a less radical approach was followed. Instead of trying to control supplies directly, the government began to provide incentives to draw farmers away from growing crops that it deemed to be in excess supply. The main incentive used was credit, for of all agricultural programs over the last five decades, by far the most successful and the one with the largest impact has been its credit program. In the Bank for Agriculture and Agricultural Cooperatives, it has an organ which had close (if not always friendly) relations with individual farmers. It was to this organization that the government turned when it wanted to "restructure" agriculture. Thus credit was provided to farmers who had been growing the specific crops which it wanted them not to grow, and who were willing to grow something else. Where tree crops were involved, the farmers had to cut down the trees. It was hoped that this method of supply management would successfully tackle the problem of depressed prices.

The last variant of this program—there has been a series—was evaluated by Thailand Development Research Institute (1995), which concluded that the program had at best a marginal effect on the price level, and therefore relatively little impact on farm income.

Various governments have drawn the correct conclusion that the central problem of Thai agriculture is one of maintaining competitiveness in world markets. But in their policies, they have been obsessed by the need to shore up prices. Admittedly, this is politically necessary in the short term in many instances. But it has detracted the governments from the need to reduce costs for the farmers through better technology. Governments have perceived the "solution" to lie in shifting farmers away from unprofitable crops which suffer from low prices. But this is a "solution" that would have occurred to farmers in any case. Why expensive programs have to be launched to induce the farmers to do the obvious has never been made clear, except if one takes the view (unfortunately all too common in bureaucratic circles) that farmers are too stupid to do so on their own.

At this point, mention should be made of a government program which did not focus on the price problem faced by Thai agriculture, namely the Green Esan Programme (Esan is a Thai word for the Northeast, Thailand's poorest region). The stress was on the enhancement of income and the improvement of the quality of life, with primary attention given to the maintenance of the region's natural resources, specifically, its forests, its water and its soil. A great part of the exercise was the consolidation of government efforts under one umbrella program to which private sector participation was invited. Although additional budgetary resources roughly equal to the original resources were planned, by 1991, the additional component has dwindled to less than one-fifth, with the primary emphasis being on the development of water resources. (TDRI 1995: 56-60).

THE FUTURE OF THAI AGRICULTURE

If the basic view present in the paper is correct, namely that Thai agriculture will be subject to increasing comparative disadvantage as the country industrializes, then, without corrective measures by the government, the future for the Thai farmers looks bleak indeed. Past practice, and it must be said, the examples set by the more advanced East Asian economies, would then point to increasing subsidies and increased protection against foreign competition as the path that the Thai government will follow to protect the standards of living of Thai farmers. Its behavior with respect to

import-competing farm products indicates that Thai farm politics will be subject to the same stresses and strains as in more advanced countries. However, it also remains true that Thai agriculture is still characterized by its export orientation. All projections indicate that this will remain true at least for the next ten to fifteen years, in particular for rice.

Such an export orientation implies that protective policies of the kind practiced by Japan, Korea or Taiwan will necessarily impose a much larger fiscal drain than otherwise, and therefore the Thai government is less likely to adopt this course of action than had Thailand been a net importer of major agricultural commodities. The only viable long term solution both for the agricultural sector and for the farmers is adaptation in line with changing comparative advantage.

Without major distortions in the agricultural sector, the farmers will bear much of the burden of adaptation. We have seen how this adaptation is already proceeding. In the future, the major constraints bearing down on them will be in two key resources: labor and water.

As labor becomes increasingly scarce and unavailable to farmers, they will have to economize much more than they have in the past. There are two ways they can do so: by moving to relatively less labor-intensive crops, and by using less labor-intensive techniques, such as mechanization or the use of broadcasting rather transplanting in rice production. These two ways are not completely independent. Where mechanization can be easily done, using existing technology, a labor-intensive crop such as sugarcane can survive within the new economic environment. In the case of rice, the other labor-intensive crop, machines have replaced most operations, and broadcasting of pre-germinated seeds has replaced transplanting in irrigated areas, while in rainfed areas, machines are becoming more and more visible.

The technology needed to save labor, particularly in the area of mechanization, will be provided by the private sector, as it has been in the past. Public research is needed only in the design of new varieties which should be compatible with and able to withstand machine operations.

The problem of water will be far more intractable. It is becoming increasingly scarce during the dry season, as demand has been increasing from all sectors. Agriculture, currently the main user of water, will come under increasing pressure to reduce consumption. With this resource becoming expensive, Thailand will further lose its comparative advantage in agriculture, certainly vis-a-vis resource-rich countries such as Myanmar. On the hand, other major countries in Asia, for example China, will be subject to even worse strains on their water resources. Researchers are currently examining this problem in an international context, and until their answers are in, it will be difficult to predict how this constraint will affect agriculture throughout Asia, and what position Thailand will hold in this respect. But the one thing that can be predicted for certain is that current ways of managing this resource, predicated as it is on the assumption of unlimited supplies leading to the doctrine of free access, will no longer be viable. A major task looms ahead for the government to set up new rules of the game to cope with the new situation.

Other than in the area of water, what is the role of public policy in this process of adaptation to the new environment? That role has two prongs, one is an agricultural *sector* policy, and the other is a rural social policy.

The priority for an agricultural sector policy will have to be in the development of technology that will allow Thai farmers to reduce their costs to compete effectively in the world market without lowering their standard of living. In the past, the government has relied too much on the private sector to provide the new technology through contract farming. This can be successful in some cases but not in all. In the long term, the only proven way that this can be achieved is through public sector research, and this has been the proven path in all countries with advanced agriculture, even in the United States.

The Thai government does spend an adequate amount on research, at least by international standards—it ranks third in Asia after India and China. There has been some results to show for this. Thus Thai breeders have been notably successful in maize and cassava, and they have come out with a steady stream of new varieties in rice. Relative to the resources spent and relative to the performance of other countries' research system, however, this output can be improved.

But the problem of agriculture in the new environment is that different parts and different regions and different sets of farmers will be able to cope with the changes and adapt to these changes with different capacities. This will be even more true if the research system can be made to have a bigger impact on productivity. We have already mentioned the two types of farmers: those who are becoming more "professional" and those whom I have alluded to as "casual farmers." The casual farmers will be increasingly in rainfed areas, and will become older as time goes on. If their main incomes are from farming, they will face increasing dislocation. To try and support farming in this area is going to be

futile. A finely-tuned rural social policy is needed for this category of people.

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